

PATENT

INSTITUT FRANCAIS DU PETROLE

METHOD AND DEVICE FOR EVALUATING PHYSICAL PARAMETERS OF AN UNDERGROUND RESERVOIR FROM ROCK CUTTINGS TAKEN THEREFROM

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ABSTRACT

- Method and device for evaluating, simultaneously and with a single equipment, physical parameters such as the absolute permeability and the porosity of fragments taken from a fragmented artificial or natural porous medium.
- The porosity of the fragments is measured by means of pressure tests using helium or any other gas, according to a protocol known in the art. Chamber (1) in which they are contained is communicated with a tank (11) of known volume containing helium at a known pressure. At pressure balance, the value of the solid volume can be deduced. The rock envelope volume and the mass in fragments are also measured. The porosity of the samples and the density of the rock are determined by combining these measurements. Their permeability is then measured by immersing them in a liquid and by communicating the chamber with a liquid initially at a predetermined pressure contained in an accumulator (9) so as to compress the gas trapped in the pores of the rock. The values of the physical parameters are determined by modelling the evolution of the volume of liquid injected in the chamber and by means of an iterative adjustment.
- Applications : petrophysical measurements from drill cuttings or crushed cores for example.